

SEED TREATMENT

for controlling

Stinking Smut and Other Grain Diseases

By

Don C. Norton

Extension Plant Pathologist

Texas A. & M. College System

Every year plant diseases cause great loss in yield, quality and in acreage of grain crops in Texas. A potential threat to wheat is stinking smut, sometimes known as covered smut or bunt. It often causes much 'dockage' at the grain elevator.

How Can One Tell Stinking Smut?

Stinking smut is usually first noticed at heading time. The diseased heads, before maturity, are of a slightly deeper green color than healthy ones. In some varieties of wheat the glumes or seed covering of diseased heads are pushed apart, giving an overall scraggly appearance to the heads.

Why Does Seed Treatment Control Stinking Smut?

When the grain is harvested, the diseased and healthy heads are mixed. It is during the process of combining that many smut spores lodge on and adhere to healthy kernels. At planting time these smut spores will be sown along with the grain. Under favorable conditions both the smut spores and the wheat kernels will germinate. Wheat is most susceptible to invasion by the smut fungus just after germination. Once infection has occurred, the fungus grows within the tip of the wheat plant. At heading time, masses of tiny black smut spores, often called smut balls, fill the area where the grain would usually develop.

Kill The Fungus While It Is On The Seed And Control Stinking Smut.

What Can Be Used To Treat The Seed?

There are several chemicals which can be used. Among those most widely used are New Improved Ceresan and Ceresan M. These are used in the form of a

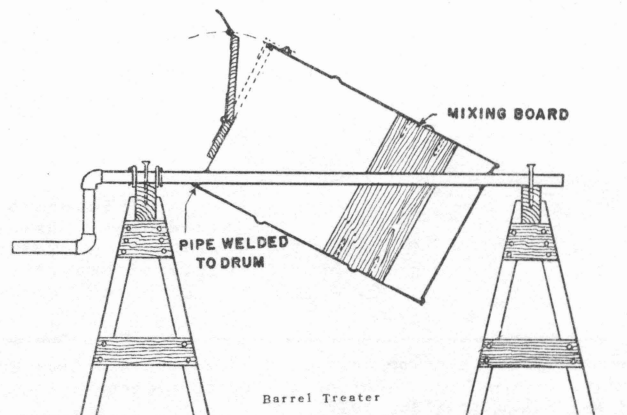
dust. They are applied at the rate of one-half ounce per bushel of wheat. An ordinary tablespoonful, slightly rounded, will hold about one-half ounce. Arasan and Spergon may be used at the rate of two ounces per bushel of wheat. They should not be used for oats or barley. For these two crops use New Improved Ceresan or Ceresan at one-half ounce to the bushel.

How Can One Treat The Seed?

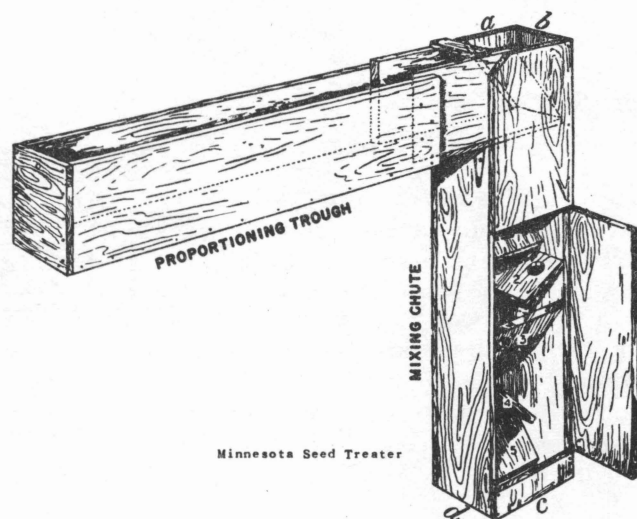
In many areas seed may be treated at the elevator. If this is not available, or is not preferred, treat your own seed at home.

There are several ways to do this. One way is the *shovel method* which consists of dumping a bushel of wheat on a smooth, clean floor and adding the recommended amount of chemical. For either one of the Ceresans this would be one-half ounce. More bushels may be added but for every bushel add the correct amount of the chemical. This pile should then be thoroughly shovelled and left in porous sacks or in an uncovered pile for at least 24 hours. If one of the Ceresans is used the seed should be planted within a few days after treating.

Another type of seed treatment is the *barrel treater* where the seed and



chemical are mixed in a barrel which rotates on a diagonal axis. Among the gravity types, the *Minnesota seed treater* is the most popular. This consists of



pouring the chemical and wheat through a vertical chute which has a series of baffles. If further details are desired, consult your County Agricultural Agent or write to the Extension Plant Pathologist.

Will Chemical Seed Treatment Control Any Other Diseases Of Small Grains?

Yes. Besides controlling stinking smut of wheat, chemical seed treatment will control covered smut of barley, and loose and covered smut of oats. It is also effective in reducing the amount of seedling blight and seed decay, thus giving better stands and more vigorous plants.

Chemical seed treatment will not control loose smut of wheat, loose smut of barley, corn smut or the various rusts of grains.

If A Resistant Variety Is Grown Should The Seed Be Treated?

It is always good insurance to treat the seed. As mentioned earlier, seed treatment helps prevent seedling blights and seed decay for which there is little resistance. Also, smut resistant varieties often lose their resistance by a build-up of a new virulent race of the fungus. Seed treatment helps to prevent this build-up of other races.

How Much Does Seed Treatment Cost?

This will vary with the kind of seed treated, the chemical used, and the method of application. It may be anywhere from three to 20 cents a bushel of seed.

What Precautions Should Be Taken When Treating Seed?

All chemicals used in seed treatment are poisonous and often irritate the skin and eyes. Take these precautions:

1. Treat the seed in a dry, well-ventilated place.
2. Wear a mask over the nose and mouth. A cloth will usually be sufficient.
3. Keep the body well clothed.
4. Wash all material off the skin with large amounts of water. Rinse the eyes thoroughly.
5. Do not use treated seed for animal feed or human consumption.
6. Store the seed in a safe dry place.
7. Keep chemicals out of reach of children.

Issued by
The Agricultural Extension Service
The Texas A. & M. College System and
The United States Department of Agriculture
G. G. Gibson, Director, College Station, Texas.